MICROSCOPE USING DIFFRACTION OPTICAL DEVICE

Patent Number: JP6186504
Publication date: 1994-07-08
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Requested Patent: JP6186504
Application Number: JP19920353676 19921215
Priority Number(s):
IPC Classification: G02B17/08 ; G02B5/18 ; G02B21/00 ; G02B27/46
ECLA Classification:
Equivalents:

Abstract

PURPOSE:To obtain an apodization effect and a super resolution effect without using multilayer film by arranging a diffraction optical device in which different diffraction effects can be displayed at different parts in a pupil.
CONSTITUTION:This microscope is constituted of a ring slit 1 arranged at the pupil position of a condenser, the condenser 2, a sample 3, an objective lens 4, a spatial frequency filter 5 arranged at the pupil position on the objective lens 4 side, and an image surface 6. The spatial frequency filter 5 is a concentrical rectangular phase grating, and whose duty factor at the conjugate part of the aperture part 1a of a cyclical slit 1 arranged at the pupil position of the condenser 2 is set at 0.5, and the duty factor at another part is set as 0.1. Also, the depth of the grid is adjusted so as to be pi=phi 6 at certain wavelength, and the diffraction effect of 0th-order light at respective part is set so as to be 50% and 82%. At this time, the pitch T of a diffraction grating is set so that diffracted light other than diffracted 0th-order diffracted light can go to the one not being made incident on an optical system behind the pupil of the microscope.